Assessments for Minimum Proficiency Levels a and b (AMPL-ab)
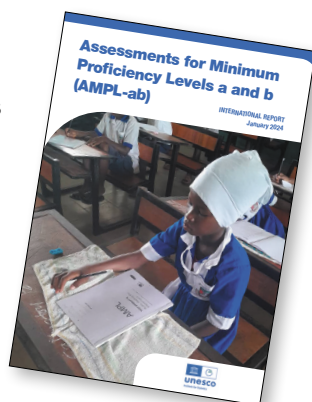

ZAMBIA

January 2024

Acknowledgments

Background

As part of Sustainable Development Goal (SDG) 4, Indicator 4.1.1 aims to measure the "proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex." To meet this goal, UIS has coordinated efforts to establish common reading and mathematics scales for all three points of Indicator 4.1.1, building on existing cross-national and national assessments. As a result of these efforts, two important points of consensus have been reached: the definition of the Minimum Proficiency Level (MPL) and the Global Proficiency Framework (GPF).

The overarching objective of the AMPLab project is to measure and analyze the performance of students at the end of lower and upper primary using an assessment that aligns with the GPF. This will:

- enable the collection of more informative data about where students are performing in terms of the MPLs at the end of lower and upper primary in reading and mathematics,

- produce baseline measures to set targets and compare learning gains/losses over time

- facilitate reporting on SDG 4.1.1

- aid the tracking of learning progress over time

- complement tools that had been already developed in 2021 in the Monitoring the Impacts on Learning Outcomes (MILO) study.

The results of this study can be found in the International Report (UIS, 2023). This document provides a summary of the results for Zambia.

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INTERNATIONAL REPORT
January 2024

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Introduction

In Zambia AMPL-a was administered to Grade 4 students, as well as AMPL-a and AMPL-b were administered to Grade 7 students. There are 7 grades in primary school in Zambia, hence AMPL was administered during the final year of lower primary school and at the final year of primary school. In both grades, a representative sample was drawn, which along with the respective response rates, can be seen in **Table 1**.

TABLE 1: Sample of Zambia Grade 4 and 6 population

GRADE	SCHOOL POPULATION	SCHOOL SAMPLE	SCHOOL RESPONSE RATE (%)	STUDENT POPULATION	STUDENT SAMPLE	STUDENT RESPONSE RATE (%)	OVERALL RESPONSE RATE (%)
4	8,143	250	98	474,406	4,953	95	93
7	8,143	250	97	379,200	4,888	96	93

Response rates refer to weighted data of sampled and substitute schools.

PERFORMANCE DISTRIBUTION CHARTS

For each country, the distribution of students' mathematics and reading performance is displayed in a 'performance distribution chart'.

The 2 dashed vertical lines in these charts indicate the approximate locations of the MPLa and MPLb benchmarks – providing information about the approximate proportion of students achieving above MPLa and below MPLb (ie., between MPLs).

The vertical axis of these plots indicates the 'density' of student proficiency. The entire shaded area is equal to a total probability of 1. The shaded area sectioned by the MPL vertical lines gives the proportion of the students above and below each benchmark.

Assessment results – Zambia

In Zambia, 14.4% of Grade 4 students in mathematics and 12.7% of Grade 4 students in reading, reached or exceeded MPLa, the relevant MPL for lower primary school. As for students in Grade 7, 16% in mathematics and 9.7% in reading, reached or exceeded the relevant MPLb. These results can be seen in **Table 1**. The only statistically significant difference between girls' and boys' proficiency in Zambia, is amongst Grade 7 student proficiency of MPLb, where girls outperformed boys by 2.7 percentage points.

TABLE 1: Proportion of Grade 4 and Grade 7 students in Zambia reaching or exceeding MPLa and MPLb in mathematics and reading

DOMAIN	PERCENT REACHING OR EXCEEDING MPLA (LOWER PRIMARY)	PERCENT REACHING OR EXCEEDING MPLB (END OF PRIMARY)
Mathematics Grade 4	14.4	1.3
Reading Grade 4	12.7	0.8*
Mathematics Grade 7	76.1	16.0
Reading Grade 7	54.7	9.7

Due to rounding to one decimal place, some differences described might not exactly accord with the table.
*There are too few observations or no observation to provide reliable estimates.

A fuller picture of student proficiency in Zambia can be provided by breaking down these figures according to proportion of students below MPLa, between MPLa and MPLb and above MPLb, as illustrated in **Figure 1**. In Zambia, 85.6% of Grade 4 students performed below MPLa in mathematics, and 87.3% of Grade 4 students performed below MPLa in reading. As for Grade 7 students, most achieved MPLa – over three quarters in mathematics, and just over half of students in reading. Amongst Grade 7 students 60.1% in mathematics, and 45.7% in reading, achieved between MPLa and MPLb.

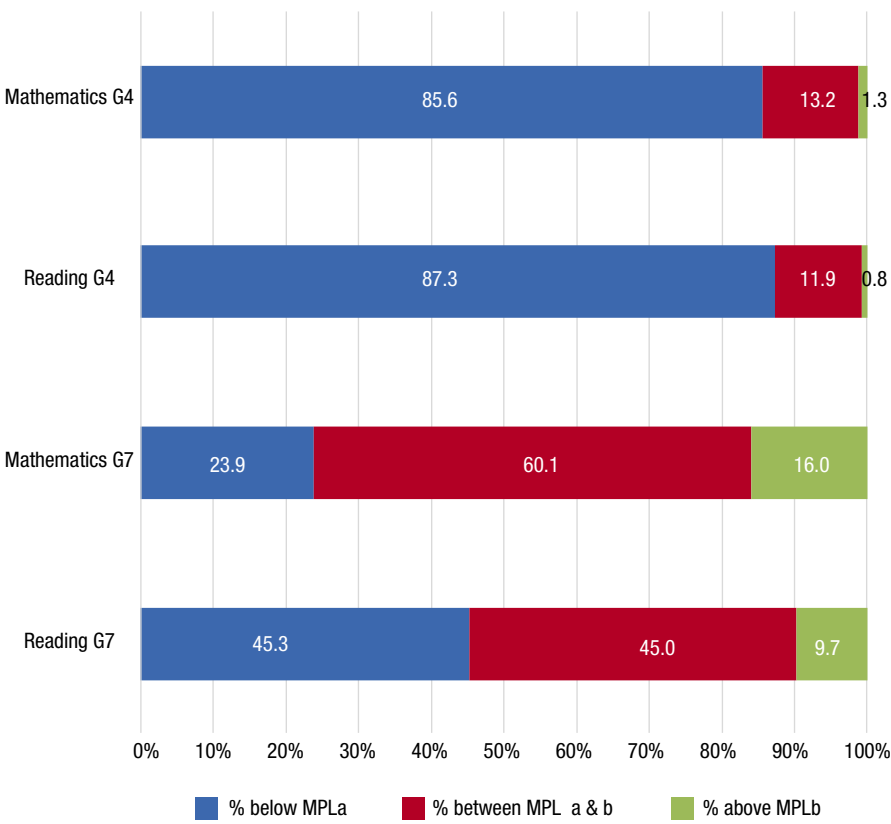**FIGURE 1:** Proportion of Grade 4 and 7 students meeting MPLs in Zambia

Figure 2 and Figure 3 illustrate the distribution of mathematics and reading performance amongst Grade 4 and 7 students in Zambia. In both mathematics and reading it can be seen from the narrower distribution that student proficiency tends to be clustered together in Grade 4, and then spreads further apart. This applies even more so in reading than mathematics. The figures also show that there was a wide range of abilities within each grade. The abilities of learners were not bound by their Grade level. For example, in both mathematics and reading there were substantial numbers of Grade 4 students performing above Grade 7 students and even above the Grade 7 mean. Conversely, there were many Grade 7 students performing below the Grade 4 mean. The overlap in performance between Grade 4 and 7 students is greater in reading than in mathematics. The means (the tips of the curves) are closer together in reading than in mathematics, indicating that there is less progress occurring between grades 4 and 7 in reading.

FIGURE 2: Mathematics performance distribution, Zambia, grades 4 and 7
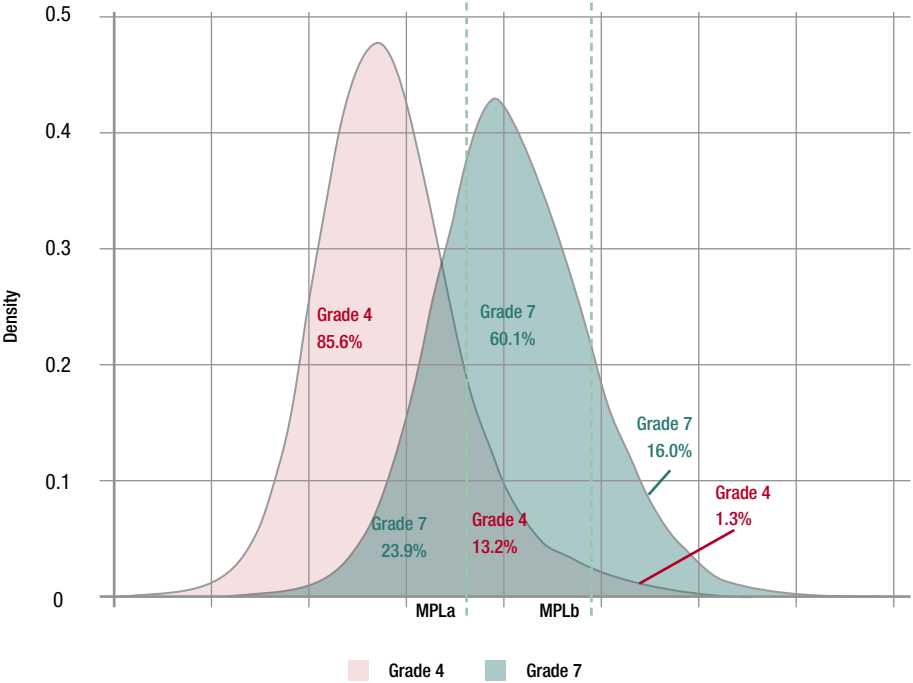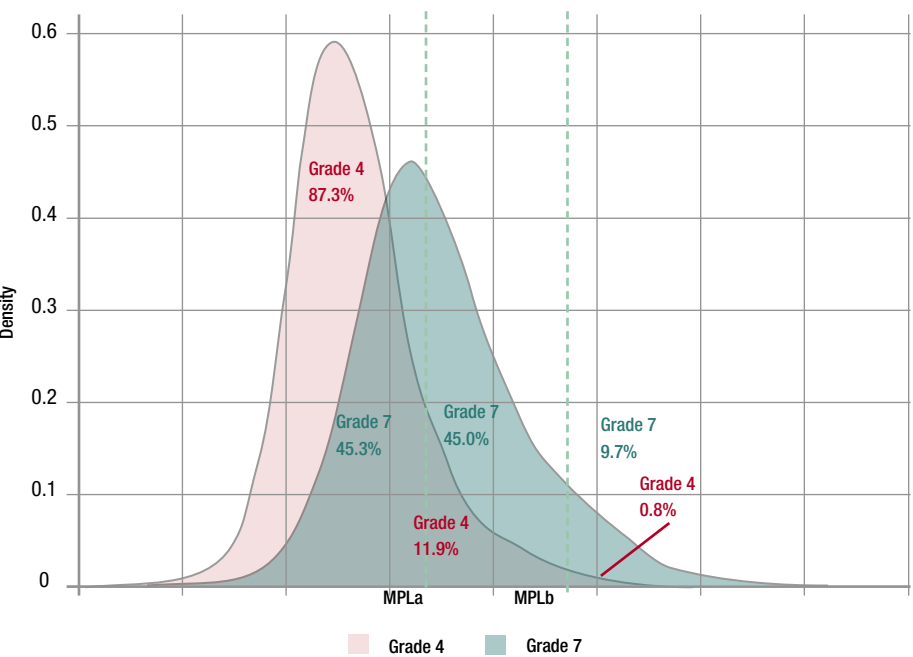

FIGURE 3: Reading performance distribution, Zambia, grades 4 and 7

Contextualising the results – Zambia

The AMPL-ab results for Zambia can be better understood by recognising the contexts associated with learning outcomes. Effect sizes are used to indicate the strength of a relationship between a contextual indicator and performance. **Figure 4** shows that 'wealth' had a strong effect on mathematics and reading proficiency in grades 4 and 7. Speaking English as the main language at home had a strong effect on reading proficiency in both grades 4 and 7, and a moderate effect in mathematics in those grades. Whereas 'parental literacy' and 'parental education' had a strong effect on proficiency of Grade 7 in reading, but only a moderate effect on other outcomes. Meanwhile, 'family support' and 'nutrition' had a moderate effect on all proficiency outcomes measured.

FIGURE 4: Effects sizes of select contextual factors on mathematics and reading outcomes - Zambia
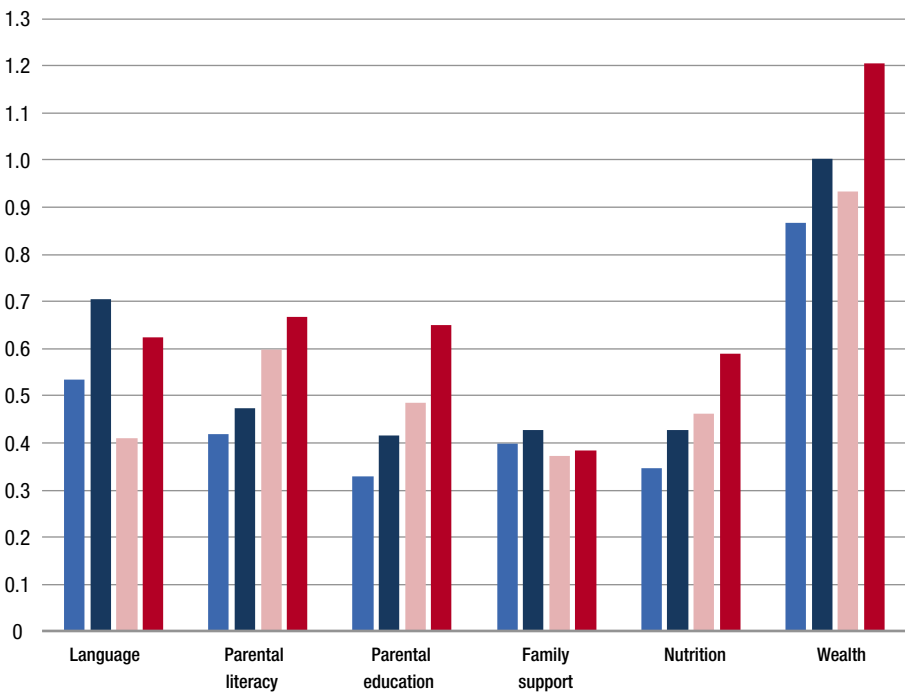
* Language: Students who spoke the assessment language (i.e. English) at home, compared to those who did not speak the assessment language at home.

Comparing Zambia's results for MPLb between 2023 and 2021

Since Zambia participated in AMPL-b 2021 UIS MILO (UIS, 2022a), the AMPL-b results can be compared with results from 2021. The AMPL-b 2023 results are consistent with the AMPL-b 2021 results from the UIS MILO study. The lowest proportion of students met MPLb in Grade 4, then more did so in Grade 5 and the most in Grade 7, as can be seen in Table 2. This means that, on average, students' abilities are progressing through their schooling. There is a 13.9 percentage point gap in mathematics and a 7.4 percentage point gap in reading between those who met the MPLb in Grade 7 of 2023 and Grade 5 of 2021. These observation is consistent with the expectation that with 2 additional years of schooling more students would achieve the MPLs at grade 7 than at Grade 5.

The effects of the school lockdowns in Zambia do not appear to be having an impact on proficiencies in reading and mathematics at a population level. This might be because schools were not closed for an extensive period in Zambia, relative to other African countries. In Zambia, full school closures were spread out in 3 periods: 7 weeks in early 2020; 2 weeks in late 2020; and 6 weeks in mid-2021 (UIS, 2022b). Furthermore, spreading out school closures might have disrupted learning less than schools being closed for many consecutive months, as happened in some other African countries.

TABLE 2: Comparing MPLb between 2023 and 2021

COUNTRY & YEAR	GRADE	% MEETING OR EXCEEDING MPLB MATHEMATICS	% MEETING OR EXCEEDING MPLB READING
Zambia (2023)**	4	1.3	0.8*
Zambia (2021)	5	2.1	2.3
Zambia (2023)	7	16.0	9.7

 * There are too few observations to provide reliable estimates. Grade
** Measuring MPLb at Grade 4 was not the main goal of this study and will not be reported against SDG4.1.1b. However it is useful to include here for analytical purposes.

References

ACER. (2022). Minimum Proficiency Levels: Described, unpacked and illustrated. https://research.acer.edu. au/monitoring_learning/63/

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